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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,355	08/01/2003	Peter P. Sorokin	903-009	3707
24295	7590	11/17/2005	EXAMINER	
Rodney T. Hodgson, Ph.D. 822 Pines Bridge Rd. Ossining, NY 10562			RODRIGUEZ, ARMANDO	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/633,355

Applicant(s)

SOROKIN ET AL.

Examiner

ARMANDO RODRIGUEZ

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 14 and 19 is/are rejected.
- 7) ☒ Claim(s) 12 and 15-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1,

Claim 1 has been interpreted in light of the specification, however it is not clear within the claim how the excitation of the gas is maintained. Is the excitation of the gas accomplished by the propagating beams or is the excitation of the gas accomplished by other means such as electrodes, thereby the claim is ambiguous and indefinite.

Regarding claim 1,

Applicant has failed to define  $\Delta$ -type structure within the claim language.

Regarding claim 2,

Are the laser beams of claim 2 the same beams as in claim 1 or are these beams different?

Claim 10 recites the limitation "said propagating light beam intensities" in line 5.

There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "said three specified-species levels" in line 1.

There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "said three specified-species levels" in line 1.

There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "said three specified-species levels" in line 1.

There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the same singly ionized isotope" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "said three specified-species levels" in line 1.

There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "the same singly ionized isotope" in line 4. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Pradere et al (US 4,348,599).

Regarding claims 1 and 10,

Pradere et al illustrates in figure 1 a first laser source (12) and a second laser source (14) [applicant's propagating beams] and also illustrates an enclosure (11)

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[applicant's vessel] including hydrogen and argon mixture [applicant's gas]. As illustrated in figure 1 the beams from laser sources (12) and (14) are coupled coaxially [applicant's collinear] into the amplifying medium (10), which are amplified by Raman scattering [applicant's nonlinear].

Regarding claim 2,

Laser sources (12) and (14) provide laser beams [applicant's means].

Regarding claim 4,

Column 2 lines 51-53 disclose the laser (12) as pulsed and column 2 lines 64-65 discloses laser (14) as similar to laser (12).

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 8, 9, 11 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hodgson et al (US 3,892,979).

Regarding claims 1 and 19,

Hodgson et al illustrates in figure 1 a laser system having laser sources (2) and (4) providing collinear laser beams (12) [applicant's propagating beams] and also illustrates a heat pipe oven (18) [applicant's vessel] including alkali metal vapor (20) [applicant's gas] for amplifying the beams by Raman scattering [applicant's amplifying].

Regarding claim 3,

Laser sources (2) and (4) provide continuous beams.

Regarding claims 8 and 9,

Heat pipe oven (18) includes window (16) and filter (22) [applicant's reflective mirrors].

Regarding claim 11,

Column 2 lines 29-31 discloses the use of cesium [applicant's Cs] as vaporized metal within the heat pipe oven (18).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pradere et al (US 4,348,599) or Hodgson et al (US 3,892,979) as applied to claim 1 above, and further in view of Edelstein et al (US 5,017,806).

Pradere et al does disclose the use of a dye laser for providing the pulses but is silent as to the pulses being mode-locked and having a femtosecond duration.

However, it is well-known in the art to for dye lasers to provide femtosecond mode-locked pulses as disclosed by Edelstein et al in the abstract and in column column 1 line 65 to column 2 line 2.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pradere et al (US 4,348,599) or Hodgson et al (US 3,892,979) as applied to claim 1 above, and further in view of Bashkansky et al (US 5,303,710).

Pradere et al and Hodgson et al disclose the recited limitations of claim 1 except for the singly ionized Hg (mercury).

However, it is well-known in the art to use mercury for Raman scattering as disclosed by Bashkansky et al in column 6 lines 63-65.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pradere et al (US 4,348,599) or Hodgson et al (US 3,892,979) as applied to claim 1 above, and further in view of Takahashi et al (JP 2000049409).

Pradere et al and Hodgson et al disclose the recited limitations of claim 1 except for the singly ionized Xe (Xenon).

However, it is well-known in the art to use Xenon for Raman scattering as disclosed by Takahashi et al in the abstract.

***Allowable Subject Matter***

Claims 12, 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARMANDO RODRIGUEZ whose telephone number is 571-272-1952. The examiner can normally be reached on 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
ARMANDO RODRIGUEZ  
Examiner  
Art Unit 2828

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